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A study on Employment and Productivity of Manufacturing Industries in Odisha

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Abstract: *Manufacturing sector is the most growth and employment generating sector which has lot of potentiality in the present context. India economy registers a comfortable growth rate due to the manufacturing sector. Odish is a rich state housing the majority of poor people because we cannot maximize our manicuring sector. The present paper focuses on the manufacturing sector of Odisha which can bring about a massive employment facility hastening the growth of the state.*

Keywords: Employment and Productivity, Manufacturing Industries in Odisha

INTRODUCTION

Odisha is a state of agriculture, where there are more than 65% of population depend directly on agriculture. But at the mean while the role of industrialisation is certainly of crucial importance as far as optimum utilisation of natural resources and generation of gainful employment are concerned. It has been empirically established that the level of percapita income is positively correlated with the degree of industrialisation.

Manufacturing is process where there is conversion of raw material is made into finished or final product which either can be used as final product for customer's satisfaction or used as raw material for producing another final product. Finally we can say that manufacturing industry refers to a business that transforms raw material into finished or semi-finished product, using various inputs like machine, tools and labour.

For a poorest state like Odisha, which is a store house of natural resources investment should be done on manufacturing industries for the optimum utilisation of resources and generating employment growth.

MEANING OF INDUSTRIALISATION

In a restricted sense, industrialization simply means establishment and growth of manufacturing industry. It is a process of building up the capacity of the country to process the unprocessed and semi-finished products into finished goods either for immediate consumption or for future production (Papola-1981). Broadly speaking, it is a deliberate process of transforming the basic structure of the society through industrial revolution so that the process of development is hastened. Transformation through industrialization results in a series of interactions between pre-existing agricultural society and the compulsions of industrial process (Gerschenkrons-1962). As a result of these interactions, development of mechanical knowledge; change in the technological parameter in the production function; change in the skill, attitude and behavioural pattern of industrial workers; spread of economic gains of industrial progress to agriculture, trade, distribution and other allied changes take place. Thus, industrialization holds the key for restructuring the economy and accelerating the pace of development.

WHY THE PRESENT STUDY

In the era of liberalisation, globalisation and privatization it is experienced that the industrial development of India is quite significant compared to other developing countries. However the way industrialisation has developed has not generated much employment over the year. Most of the industries have become capital intensive particularly after economic reforms. In a labour abundant state like Odisha labour intensive technique is more appropriate compared to capital intensive techniques? Therefore investment should be directed to those industries, which increase not only output but also employment across the industries. This necessitates the study of productivity and growth of manufacturing industries such that policies can be framed to overcome the problem of jobless growth.

REVIEW OF LITERATURE

The review of literature helps to know the findings of past studies and to identify critical gap in it. The literature and research study on labour productivity is very vast. An humble attempt has been made to review important and relevant literature.

Idris Jajri and Rahmah Ismail,(2009) in a study of "Technical Progress and Labour Productivity in Small and Medium Scale Industry in Malaysia" observed that technical progress will be a complement with more skilled labour but a substitute with less skilled labour. They examined the effect of technical progress on labour productivity using a Human capital method developed by Cörvers(1996) is based on a Cobb-Douglas production function, but use labour quality instead of quantity as:

$$Y = AK^{\alpha}L^{*\beta}$$

Where, Y = output, K = capital, L* = effective labour, A = efficiency parameter

Finally they viewed technical progress will have a positive effect on labour productivity due to its complementarities with skilled labour and a positive relationship between skills and productivity.

Sarbapriya Ray (2012) in his study "Determinants of total factor productivity Growth in Selected Manufacturing Industries in India**"** In this paper he has studied the factors which affect total factor productivity growth of selected manufacturing industries. For this he has covered the period from1980-81 to 2003-04 and used OLS technique. Here he has suggested that trade variables as well as macro-economic variables have relevant significant impact on TFPG of industries.

A study by Supachet Chansarn *(*2010) in "Labour Productivity Growth, Education, Health and Technological Progress Cross-Country Analysis" examined the influences of education, health and technological progress on the growth rate of labour productivity by utilising the Growth Accounting Equation which represents the relationship between the growth rate of output and the growth rate of inputs and productivity (Bernanke et al., 2008). This study concludes, only education, as measured by mean years of schooling, and technological progress, as measured by the average annual growth rate of total factor productivity, are the significant determinants of the growth rate of labour productivity. In addition, the influence of health on labour productivity growth should be re-investigated to confirm the result as well.

Nitin Gupta (2012) in a study of "Impact of elasticities of substitution technical change and labour regulation on labour welfare in Indian industries" has investigated the relative importance of technical change elasticities of substitution and labour regulations for labour welfare ,profited by income share of skilled and unskilled labour in total costs. In his study he has used the panel of 22 industries (at the 2-digit level of industrial classification), 15 Indian states, and a 12-year timeframe (from 1991-2002). The primary variables are cost; output; input prices and costs shares for skilled labour, unskilled labour, capital, fuel, and materials. And the data from the Annual Survey of Industries (ASI). He has concluded that technical change has no impact on income share. There is also exist a pattern between the magnitude of and elasticities of substitution and associated income shares. And elasticity changes favours skilled labour and hurts unskilled labours.

Manoj Kumar Dash, Gaurav Kabra and Ajay Singh (2010) in a study on "Productivity Growth of Manufacturing Sector in India an Inter-State Analysis "estimated the total factor productivity growth of the manufacturing industries of different states of India using the Translog production function to know the structure and growth of registered manufacturing factory sector, examined the extent of employment concentration in Orissa's manufacturing industries relative to all India, to explore the sources of output growth in manufacturing industries. They used total factor productivity as the measure of productivity which is defined as the difference between the rate of growth of output and rate of growth of combined inputs i.e. labour (L),Capital (K) and time (T) representing technical progress. So their findings states that TFPG estimates depend significantly on the measurement of output. Secondly, TFPG (Y) and TFPG (Z) remained low and stagnant for a large number of states during 1970s which supports the existing ideas. Finally, productivity of at least three states namely Karnataka U.P. and M.P. have increased during 1990s for both of the two measure of output taken up for the present study.

Dipak Mazumdar (2000) in his study "Trend in employment and employment elasticity in manufacturing" has studied that employment growth and wage growth are the two main determinants of employment elasticity. In his study he has used the time series data for the manufacturing sector collected by UNIDO from the national survey of member countries. Besides this he has used the other two factors which affect the size of labour force .First one is the elasticity of wage bill with respect to output which determine the share of labour and secondly the price effect.

Dipa Mukherjee and Rajarshi Majumder (2007) in a study of "Efficiency, technological progress and regional comparative advantage: A study of the organized manufacturing sector in India" wanted to estimate trends in factor productivity, technological progress and technological efficiency in the manufacturing sector in India and examined the relative importance of each component. They measured the changes in productivity levels through changes in either total factor productivity or TFPG with the background of the growth accounting approach as formulated by Solow (1957), where output growth can be decomposed into two components: growth due to changes in inputs, and growth due to other factors. It is also observed that the factor of technological efficiency, which leads to growth in output through greater experience and skill of workers, better organization by entrepreneurs, better utilization of existing resources, etc., is quite significant in a capital-scarce

developing economy like India. In such countries, diffusion of technology is more important than the modernity of the technology itself.

In an IMF working paper E Crivelli, D Furceri and J Toujas Bernate in their paper named "Can policies affect employment intensity of growth? A cross country analysis"(2012) has studied the employment –output elasticities and also assess the effect of structural and macroeconomic policies on the employment intensity of growth. In their study they have taken a panel of 167 countries covering the period of 1991-2009 and concluded that structural policies have accelerate labour and product market flexibility and positive impact on employment elasticities can be attained by reducing Govt size.

OBJECTIVES

1. To examine employment and labour intensity for different industries in Odisha.
2. To investigate productivity and growth of manufacturing industries in Odisha.

DATA ANALYSIS RESULT AND DISCUSSION :

The data for the present study have been drawn from the Annual Survey of Industries (ASI) characterised by 3-digit of NIC 2008. The study is confined to ten major Indian industries for which comparable time series data are available for the period from 2008-2009 to 2012-2013.

Table-1

MANUFACTURING SECTORS

1. Manufacture of food product – NIC- 107
2. Manufacture of beverages - NIC- 110
3. Manufacture of tobacco product- NIC-120
4. Manufacture of textile - NIC 139
5. Manufacture of wood product - NIC -162
6. Manufacture of paper and paper product – NIC -170
7. Manufacture of basic chemicals, fertilizer and nitrogen compound plastic and synthetic rubber - NIC 201
8. Manufacture of pharmaceuticals - NIC -210
9. Manufacture of rubber products - NIC -221
10. Manufacture of plastic product - NIC- 222

Table-2

Number of registered factories, Value of Output and Value added by the manufacturing and repairing sector of Odisha.

Values in Rs.'000

Year	No.of Reporting units	Fixed Capital	Working capital	Total Employ Ees	Value of output	Total Input	Net value added
2008-2009	1848	546961427	37534441	213534	695329224	503376138	166740571
2009-2010	2052	9272234	1246121	227525	6566234	4771268	1479974
2010-2011	2536	12166281	587550	282860	9214154	7069789	1693137
2011-2012	2678	16080526	990623	284637	11541915	9121209	1820476
2012-2013	2854	16377525	624989	263651	11369603	8897360	1805725

From the above table it is clear that manufacturing sector in Odisha is growing gradually. It may be noted that the number of registered factories are increasing but at a higher rate. It was only 1848 unit in2008-2009 which is 2845 in2012-2013.It is clear from the table that the input and output are also increasing, but output is always greater than input. Therefor it is showing a positive net value added. If we take the case of employment it is also increasing but at a very marginal rate . During the year 2010-2011 to 2011-2012 employment rate is very low that is only 1777. During the year 2012-2013 it is fall down to 263651. The capital structure of manufacturing sector Odisha show that more than 90%consist of fixed capital and rest are working capital. Thus it is clear that all the sectors are using capital intensive technique

Table-3 Total factor productivity Values in Rs. '000

Year	No..of Units	Value of Output	Total Input	TFP(O/I)
2008-2009	1848	695329224	503376138	1.3813
2009-2010	2052	6566234	4771268	1.3762
2010-2011	2536	9214154	7069789	1.3033
2011-2012	2678	11541915	9121209	1.2653
2012-2013	2854	11369603	8897360	1.2778

From the above table it is clear that TFP is positive showing that labour productivity is outstanding.

NIC -107

Table-4 Data relating to manufacturer of other food product value in Rs. '000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	47	21149	1640	2285	656	570	74
2009-2010	66	25864	9286	3415	50896	42087	7620
2010-2011	100	25993	8820	3867	60458	50462	7871
2011-2012	121	31596	6116	4456	92915	81679	9527
2012-2013	135	42005	3484	6720	74068	70171	1328

It is observed from the above table that the number of reporting unit are increasing .Total employment is also increasing at a faster rate, which was only 2285 number during 2008-2009 to 6720 in 2012-2013.The above table is showing a positive value added.

Table-5 Manufacturer of beverages

NIC-110 Value in No. '000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	28	36202	-1055	2290	50356	41226	4694
2009-2010	36	49641	-4138	3249	75863	58932	11792
2010-2011	41	30103	9292	2817	58692	43088	13036
2011-2012	47	56529	14924	2174	80112	57549	11792
2012-2013	49	46408	21384	2892	90669	68003	4694

From the above table it is clear that the number of reporting units remains constant throughout the period. Value of output and input are increasing.Net value added shows positive figure. If we go through the capital structure of this manufacturing industries the use of fixed capital is 90%, whereas the working capital shows a negative trend during two year i.e 2008-2009 to 2009-2010. After this it shows a positive trend.

Table-6 Manufacturer of tobacco products

NIC-120 Value in No. '000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	81	807	877	11665	9980	5947	3956
2009-2010	67	240	1228	5867	8719	5512	3175
2010-2011	86	689	1502	11235	10216	5511	4647
2011-2012	99	841	2273	12992	19047	11930	7036
2012-2013	152	746	1830	10702	26021	11052	14896

From the above table it is clear that number of reporting units are increasing though it was showing an decline trend during 2009-2010.The value of total output and total input are increasing thus the net value added shows positive trend. Though this sector generate employment, but it fluctuates throughout the period. If we go through the capital structure the use of working capital is higher than fixed capital.

Table-7 Manufacturer of other Textile

NIC-139 Value in Rs. '000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	19	2358	1718	1313	8315	6791	1201
2009-2010	16	1809	1240	1442	10769	11369	-886
2010-2011	16	2919	1484	1351	9837	10106	-617
2011-2012	16	2102	949	1210	10831	8965	1616
2012-2013	14	2287	1766	1260	14169	11273	2561

It is clear from the figure that the number of units during 2008-2009 was only 19. Which was declined to 16 in 2009-2010 and remain constant during 2009-2010 to 2011-2012 then again declined to 14 in 2012-2013.If we take the case of value of output and total input ,both are increasing former is always higher than later. In case of net value added it shows a negative trend during 2009-2010 to 2010-2011. But after that it is positive.

Table-8 Manufacturer of product of wood, cork, straw and plaiting material.

NIC-162 Value in Rs. '000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	12	3260	624	589	7502	5528	1850
2009-2010	12	3204	574	822	7822	5929	1758
2010-2011	11	2726	4083	788	4691	3438	1074
2011-2012	14	2645	1853	872	8284	6630	1458
2012-2013	8	2275	405	712	7767	6648	936

It is clear from the above table that the number of units are remain constant during 2008-2009 to 2099-2010. After that it declined to 11 in 2010-2011 and then increased to 14 in 2011-2012 and then again declined to 8. In case of value of output and total input it shows a mixed result. In case of employment it is increasing and decreasing throughout the period

Table-9 Manufacturer of paper and paper product Value in Rs. '000

NIC-170

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	34	120825	15588	7338	148285	108377	31238
2009-2010	36	118579	28913	6933	134616	95083	30364
2010-2011	41	121637	37614	6286	150750	98180	43452
2011-2012	43	141395	51533	5634	149855	116352	24001
2012-2013	42	264456	39108	6264	250798	216541	25865

Here it shows a increasing trend in case of number of reporting units. Value of output and total input are increasing but value of output is always higher than total input.Net value added shows a positive and increasing tred during the period. In case of employment it shows a mixed result.

Table-10 Manufacture of basic chemicals, fertiliser and nitrogen compounds, plastic and synthetic rubber in primary forms

NIC-201 Value in Rs. '000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	26	299083	36002	6447	1017019	870411	117363
2009-2010	40	292569	40030	6600	569612	458353	84174
2010-2011	47	283899	73014	7412	784136	660255	97466
2011-2012	40	293907	115228	7505	1037927	969137	42727
2012-2013	48	320727	93520	6507	1036728	928360	80118

It is clear from the above table that the number of reporting units are increasing from 26 in 2008-2009 to 48 in 2012-2013.Value of output is also increasing 1017019 in 2008-2009 to 1036728 in 2012-2013. Total input is also increasing and net value added shows positive trend during the period.

Table-11 Manufacturer of pharmaceuticals, medicinal chemical and botanical products

NIC-210 Value in Rs. '000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	15	853	220	556	2955	2339	504
2009-2010	17	839	140	351	3292	2644	544
2010-2011	23	1076	1955	544	3350	2170	1106
2011-2012	24	1077	366	224	2175	1538	513
2012-2013	25	2378	2177	411	3030	1432	1436

In the above table the number of reporting units are increasing. Total employment is also increasing at a faster rate. Value of output and total input are increasing but value of output is always higher than value of input.Net value added is showing a positive trend.

Table-12 Manufacturer of rubber product

NIC-221 Value in Rs.'000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	14	37012	13815	2553	107384	85345	-1486
2009-2010	19	48451	36458	2959	128335	133637	11047
2010-2011	19	38141	14558	3195	123540	104173	1106
2011-2012	17	35396	12548	3392	121657	114079	-15731
2012-2013	20	33637	57940	2464	96567	105781	7951

In the above table the number of reporting units are increasing. Total employment is also increasing at a faster rate. Value of output and total input are increasing but value of output is always higher than value of input.Net value added is showing a positive trend.

Table-13 Manufacturer of plastic product

NIC-222 Value in Rs. '000

Year	No of Units	Fixed Capital	Working Capital	Total Employment	Value of Output	Total Input	Net value Added
2008-2009	17	2589	-105	733	12510	10653	1591
2009-2010	37	3967	403	1731	22749	19513	2766
2010-2011	41	9152	9344	1828	77656	64693	12047
2011-2012	53	17510	2814	2145	50030	44378	4568
2012-2013	49	9042	2576	1681	76006	42870	32315

In the above table the number of reporting units are increasing. Total employment is also increasing at a faster rate. Value of output and total input are increasing but value of output is always higher than value of input.Net value added is showing a positive trend.

CONCLUSION:

The manufacturing sector in Odisha is a really neglecting sector mostly due to lack of political vision. Though the facilities and raw material are ample available manufacturing sector is lagging behind with other sectors only due to the unscientific planning and the defective policies. Manufacturing sector can take the state to a new high of growth and development generating employment which is the crying need of the time. The government of odisha should come out with the new manufacturing policy for the state to attract the FDI to the different manufacturing sectors so that the state would be the most important destination in the manufacturing sectoers.

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